RIDWAN MUHAMMAD RAIHAN

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Informatics graduate focused on backend development, with experience building REST APIs and managing application-database integrations. Experienced in translating requirements and architectural designs into backend implementations for system development and research projects. Interested in API design, authentication, data management, and the development of secure and reliable systems.

EDUCATION

Universitas Siliwangi **Tasikmalaya**
Bachelor's Degree in Informatics | GPA: 3,74/4,00 August 2022 - July 2026

PROFESSIONAL EXPERIENCES

Universitas Siliwangi **Tasikmalaya**
Research Assistant, Contract February 2026 - March 2026

- Implemented a web-based research system architecture using Nuxt 4 to secure QR codes and documents, including 12 REST API endpoints for document issuance and verification.
- Integrated dual-signature mechanisms and time-lock encryption to maintain the integrity, authentication, and temporal validity of QR codes and documents.
- Tested and validated the performance and functionality of the security mechanisms through benchmarking and implementation testing to ensure they operated according to the design.

SPPG Sinar Asri **Tasikmalaya Regency**
Full-Stack Web Developer, Contract December 2025 - March 2026

- Built a finance and inventory management system for the SPPG kitchen operations of the MBG Program using Go, Fiber, GORM, and PostgreSQL, with 35 REST API endpoints and role-based access control (RBAC).
- Implemented a multi-tenant architecture in which each kitchen served as a tenant, isolating budget and inventory data while restricting access according to the user's kitchen and permissions.
- Developed financial and raw-material inventory modules using row-level locking to prevent race conditions during concurrent transactions.
- Built the frontend using React, TypeScript, and TanStack Query, including eight functional pages and an analytics dashboard with Recharts for visualizing financial and inventory data.

INTERNSHIP EXPERIENCE

Kantor Pertanahan Kabupaten Pangandaran **Pangandaran Regency**
Backend Developer, Internship June 2025 - August 2025

- Developed REST API backend services for an archiving system, including JWT authentication, role-based access control, file search, archive request submission and tracking, and history management using Go, Echo, GORM, and PostgreSQL.
- Implemented a layered architecture by separating handlers, use cases, and repositories according to their respective responsibilities to apply separation of concerns.
- Analyzed functional and non-functional requirements and designed the system using Unified Modeling Language (UML) as the foundation for feature implementation and process flows.

FEATURED PROJECTS

Go Microservice Task API with Post-Quantum FN-DSA JWT February 2026 - July 2026
Golang, JWT, gRPC, Post-Quantum Cryptography, PostgreSQL, k6

- Evaluated the use of a precomputed LDL-tree signer to accelerate JWT signing with FN-DSA-512 in a microservices authentication system. Testing was conducted using k6 on a Hostinger VPS with 2 CPU cores and 8 GB of RAM.
- In isolated testing, the precomputation method reduced token issuance latency by 24.5% and CPU time by 27.3%, with approximately 108 KB of RAM usage per signer key.

- In stress tests with 10, 30, and 50 virtual users, both methods delivered nearly identical performance. Cryptographic processing accounted for less than 0.3% of overall latency, as performance was more heavily influenced by bcrypt processing and PostgreSQL access.

Hybrid Post-Quantum Signatures on Ethereum Proof of Concept December 2025 - June 2026

React, Viem, Foundry, Solidity, Golang, MetaMask

- Developed a proof of concept for hybrid ECDSA and ML-DSA signatures for authenticating Ethereum-compatible blockchain transactions using an off-chain oracle.
- Implemented ML-DSA signing and verification through the oracle, along with ECDSA verification and ML-DSA hash storage in a smart contract.
- Tested the system on Foundry Anvil with signature sizes of 2,531–4,738 bytes, round-trip times of 0.355–0.523 ms, and gas usage of 64,260–99,344.

SKILLS

Frontend	HTML, TailwindCSS, React
Backend	Google Cloud Platform, Node.js, TypeScript, PostgreSQL, Docker, Go, Redis
Tools	Neovim, Zed, Postman, Git, GitHub, Linux
Soft Skill	Teamwork, Problem Solving

COURSES

Linux System Administration

Red Hat Academy Universitas Siliwangi

- Completed an intensive five-session training program from June 3–7, 2024, focused on Red Hat Enterprise Linux (RHEL) administration.
- Practiced shell commands, Bash scripting, systemd services, network services, storage/LVM, and container management in an RHEL environment.

Belajar Back-End Pemula dengan JavaScript

Dicoding Indonesia

- Learned front-end and back-end concepts, client–server communication through HTTP, and RESTful API architecture.
- Studied Node.js and built web services and RESTful APIs using Node.js and the Hapi framework.
- Deployed and tested RESTful APIs using Amazon EC2, SSH, and Postman.

Belajar Dasar-Dasar DevOps

Dicoding Indonesia

- Studied the concepts, benefits, and fundamental principles of DevOps through The Three Ways and the CALMS Framework.
- Learned about DevOps pipeline workflows and various tools used in DevOps practices.

CERTIFICATE

Google Cloud Computing Foundations: Cloud Computing Fundamentals ***Google Cloud Platform (GCP)***

Google Cloud Skills Boost September 2024

- Studied fundamental cloud concepts, Google Cloud architecture, Google Compute, App Engine, Google Kubernetes Engine, and Cloud Run.
- Completed hands-on labs involving Google Cloud Platform services, including Google Compute, App Engine, Google Kubernetes Engine, and Cloud Run.

PUBLICATION

SINTA 3 Journal Publication June 2026

ULTIMATICS: Jurnal Teknik Informatika

Published a research article titled “Implementation of ECDSA and ML-DSA Digital Signature Schemes for Transaction Authentication on Blockchain.”